

NWS Weather Forecast Office Decision Support Services Related to Drought

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**National Weather Service
Taunton, MA**



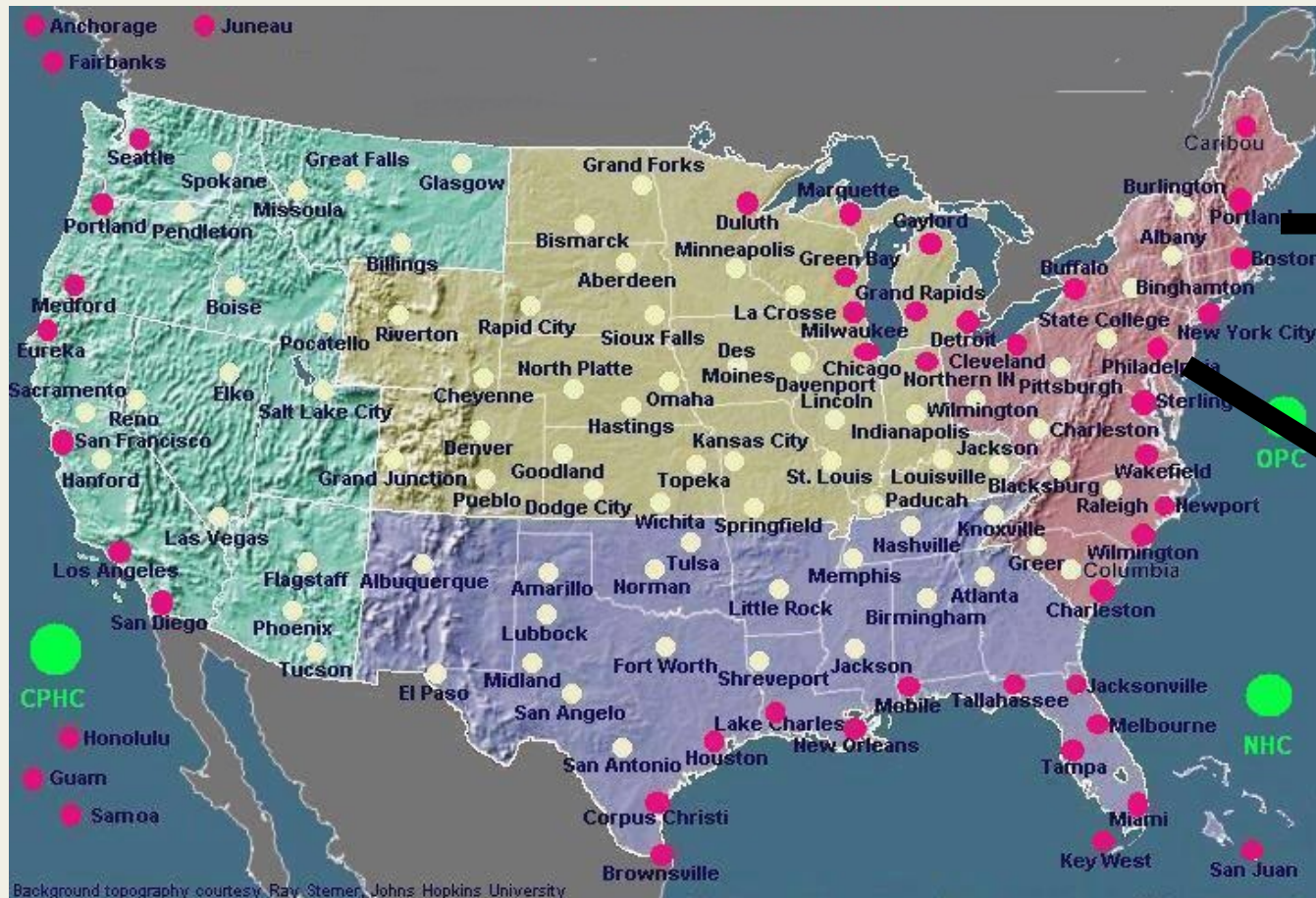
NWS Drought Decision Support Services (DSS)

- A look at NWS Weather Forecast Offices
- NWS Drought-Related Activities:
 - Examples of local NWS DSS for the 2016 Drought
 - Media Interviews
 - Drought Statements
 - NWS Messaging through Social Media



NWS Weather Forecast Offices- 123

Nation-Wide



NWS WFOs supporting portions of New York State and New England:

Caribou, ME	Buffalo, NY	New York, NY
Portland, ME	Albany, NY	Boston, MA
Burlington, VT	Binghamton, NY	Cleveland, OH

NWS Weather Forecast Offices that are State Liaison Offices:

- **NWS Portland ME:** Maine and New Hampshire
- **NWS Burlington NY:** Vermont
- **NWS Taunton/Boston MA:** Massachusetts, Connecticut, Rhode Island
- **NWS Albany NY:** New York State
- *In the above NWS offices, the Senior Service Hydrologist is the primary contact for State-specific Drought coordination and preparedness activities involving the NWS.*
- *However-*
 - *All NWS Offices can provide support!*
 - *Other NWS Staff in the region can and do serve as presenters/contributors at State Drought Meetings*



NWS Decision Support Services (DSS)- Drought

- NWS Offices and Staff provide weather and water data and forecasts in support of State Drought Meetings
- NWS Offices and Staff provide additional interim support at State or local level
- *NWS Drought DSS activities vary State-to-State, provided as requested/needed by individual States*
- *The following slides provide examples of data and forecasts provided by NWS Staff for Drought Meetings. It is not a comprehensive list. More details are available upon request.*



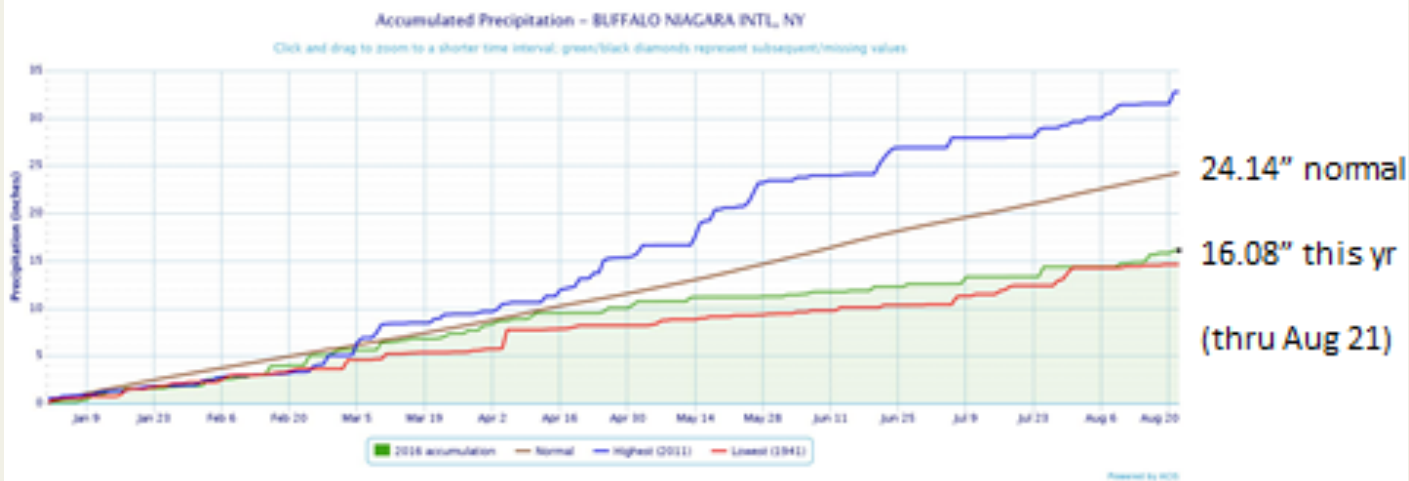
New York and Connecticut: State Drought Meetings

- NWS presence at NY and CT Drought Meetings
- Part of round-table discussion for mainly monthly meetings
- NY: NWS staff provide data and graphics that help to provide context to the situation
- CT: NWS staff provide a monthly precipitation report to help assess drought
- NWS staff provide additional information as requested/needed



Examples of NWS Material provided for NY State Drought Meetings

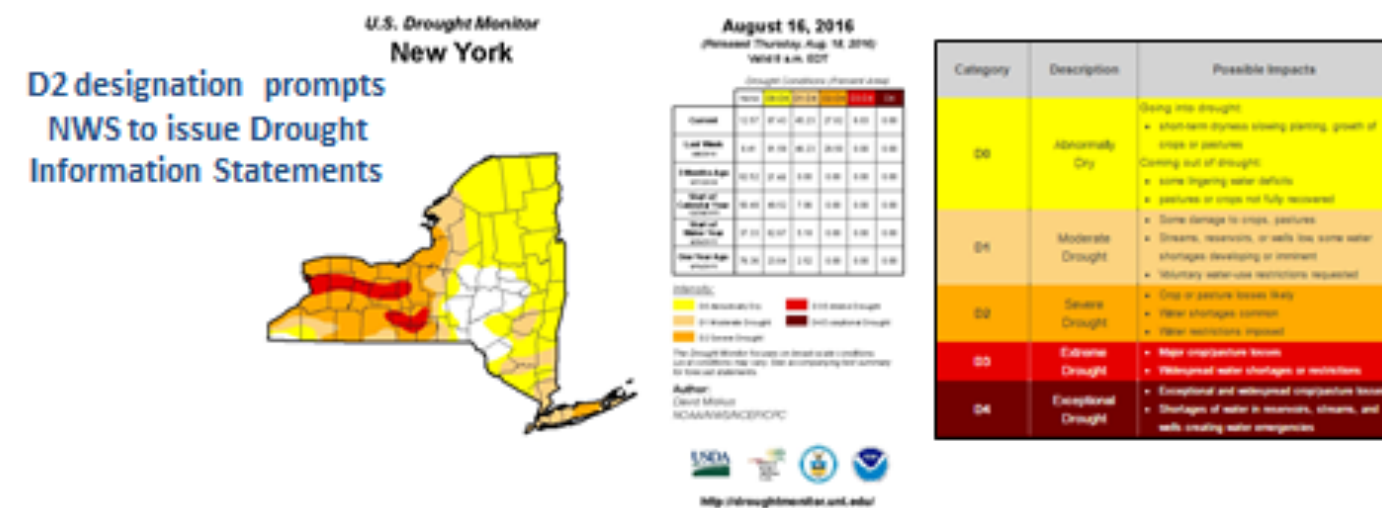
Current Status: Precipitation



Period of record: 1939-present



Current Status: U.S. Drought Monitor



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Buffalo Status: SPI Drought Comparison

Ranking	Year	Min
1	1904	-2.32
2	1987	-2.18
3	1963	-2.13
4	1924	-2.05
5	1915	-2.01
6	1943	-2
7	1910	-1.92
8	1934	-1.92
9	1920	-1.9
10	1939	-1.89
11	1896	-1.88
12	1917	-1.85
13	1957	-1.82
14	1960	-1.82
15	1947	-1.8
16	2016	-1.8

- Historical Standardized Precipitation Index monthly average values for NY Climate Division #9
- 1895-2016 August (13), 121 Years
- 16th most extreme drought
- ***Worst since 1987
(worst in 29 Years)***



NWS Monthly Precipitation Report Provided in Support of CT State Drought Meetings

Connecticut Precipitation- Early Issuance
National Weather Service Offices
Taunton MA, Albany NY, Upton NY
Preliminary Precipitation Data (inches) by County
Precipitation Data Through June 2016
Includes CoCoRaHS data

CT 1 Month June 2016	Rainfall	Departure	Percent	Normal
Litchfield	2.22	-2.38	48	4.60
Hartford	2.11	-2.51	46	4.62
Tolland	2.36	-2.22	52	4.58
Windham	1.82	-2.52	42	4.34
Fairfield	1.52	-2.92	34	4.44
New Haven	1.53	-2.87	35	4.40
Middlesex	1.30	-3.66	26	4.96
New London	1.47	-2.61	36	4.08

CT 2 month May-Jun 16	Rainfall	Departure	Percent	Normal
Litchfield	5.29	-3.72	59	9.01
Hartford	4.72	-4.32	52	9.04
Tolland	5.13	-3.55	59	8.68
Windham	4.98	-3.38	60	8.36
Fairfield	5.63	-3.19	64	8.82
New Haven	5.41	-3.23	63	8.64
Middlesex	5.34	-3.84	58	9.18
New London	5.50	-2.34	70	7.84

CT 3 month Apr-Jun 16	Rainfall	Departure	Percent	Normal
Litchfield	7.75	-5.46	59	13.21
Hartford	7.46	-5.89	56	13.35
Tolland	8.75	-4.54	66	13.29
Windham	8.83	-4.12	68	12.95
Fairfield	8.84	-4.42	67	13.26
New Haven	8.75	-4.26	67	13.01
Middlesex	9.17	-4.43	67	13.60
New London	9.30	-3.10	75	12.40

- Monthly precipitation, percent of normal averaged by County
- Helps identify where precipitation and Drought Index data fall within the State's Drought Plan
- Reports sent routinely/monthly

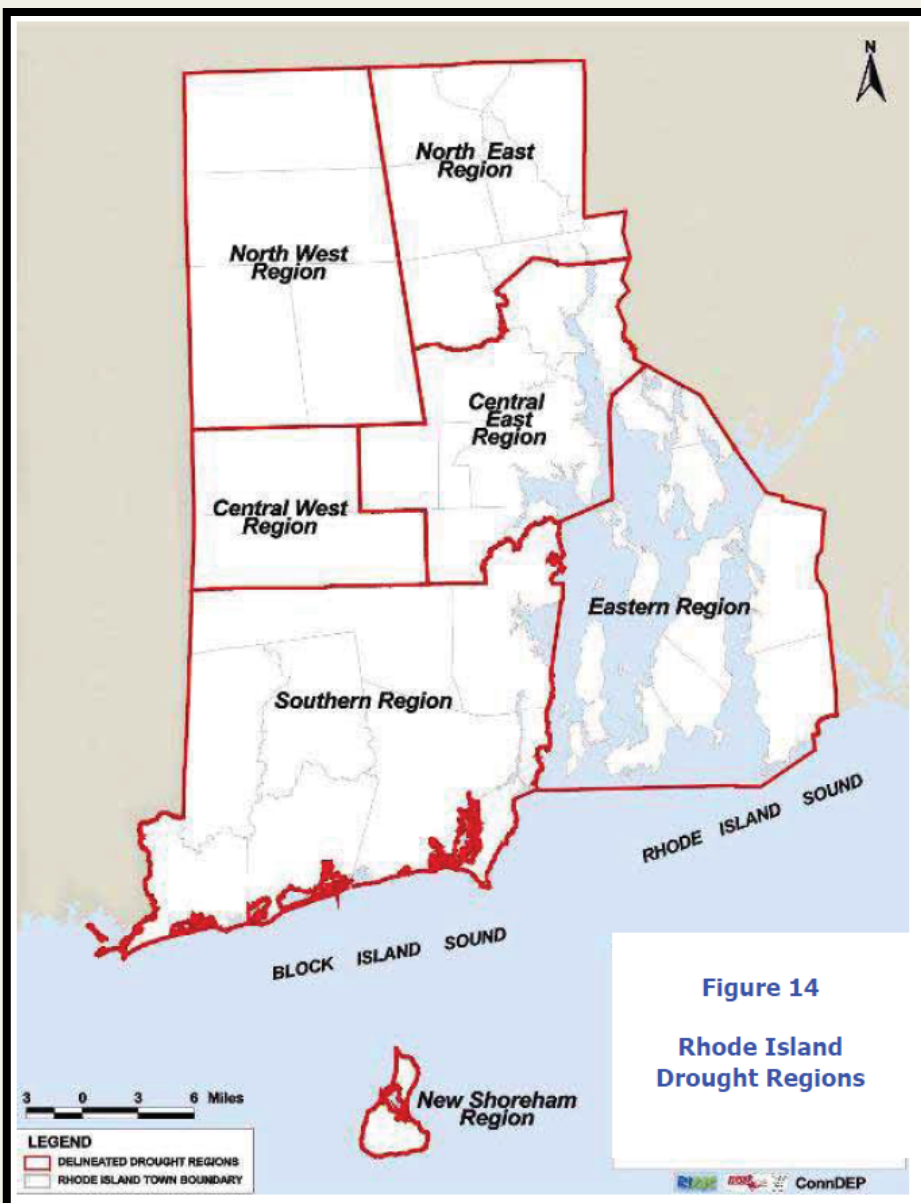


Massachusetts and Rhode Island State Drought Meetings

- *For RI: NWS provides routine monthly precipitation report broken down by Drought Region*
- RI and MA Drought Meetings: NWS Provides a formal stand-up briefing that includes:
 - Past precipitation and departures from normal
 - Various Drought Indices
 - Data/graphics to help provide context to the situation
 - Short term and long term forecast



RI State Drought Meetings- Precipitation



- Monthly precipitation, percent of normal averaged by Drought Region
- Help identify where precipitation and Drought Index data fall within the State's Drought Plan

RI 2 month Jun-July 16	Rainfall	Departure	Percent	Normal
Northwest	4.28	-4.12	51	8.40
Northeast	4.15	-3.87	52	8.02
Central West	5.15	-2.63	66	7.78
Central East	5.02	-1.91	72	6.93
Eastern	3.36	-3.31	50	
Southern	3.72	-4.22	47	
New Shoreham	3.73	-4.21	47	

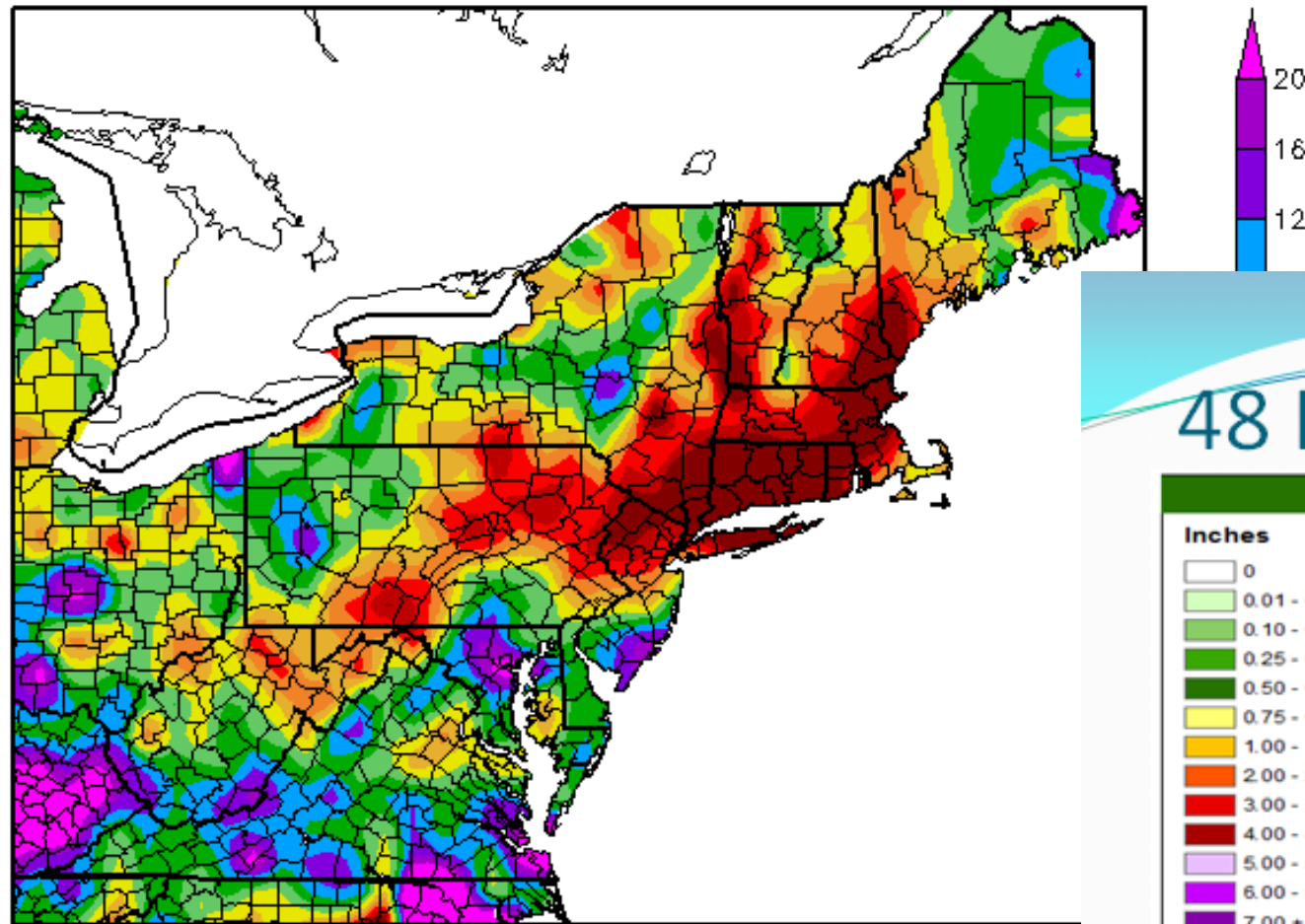
Two Month Rainfall
RI Drought Index: Precipitation
Drought Advisory Criteria
2 Month <65% of normal

Map of RI Drought Regions: Water 2030

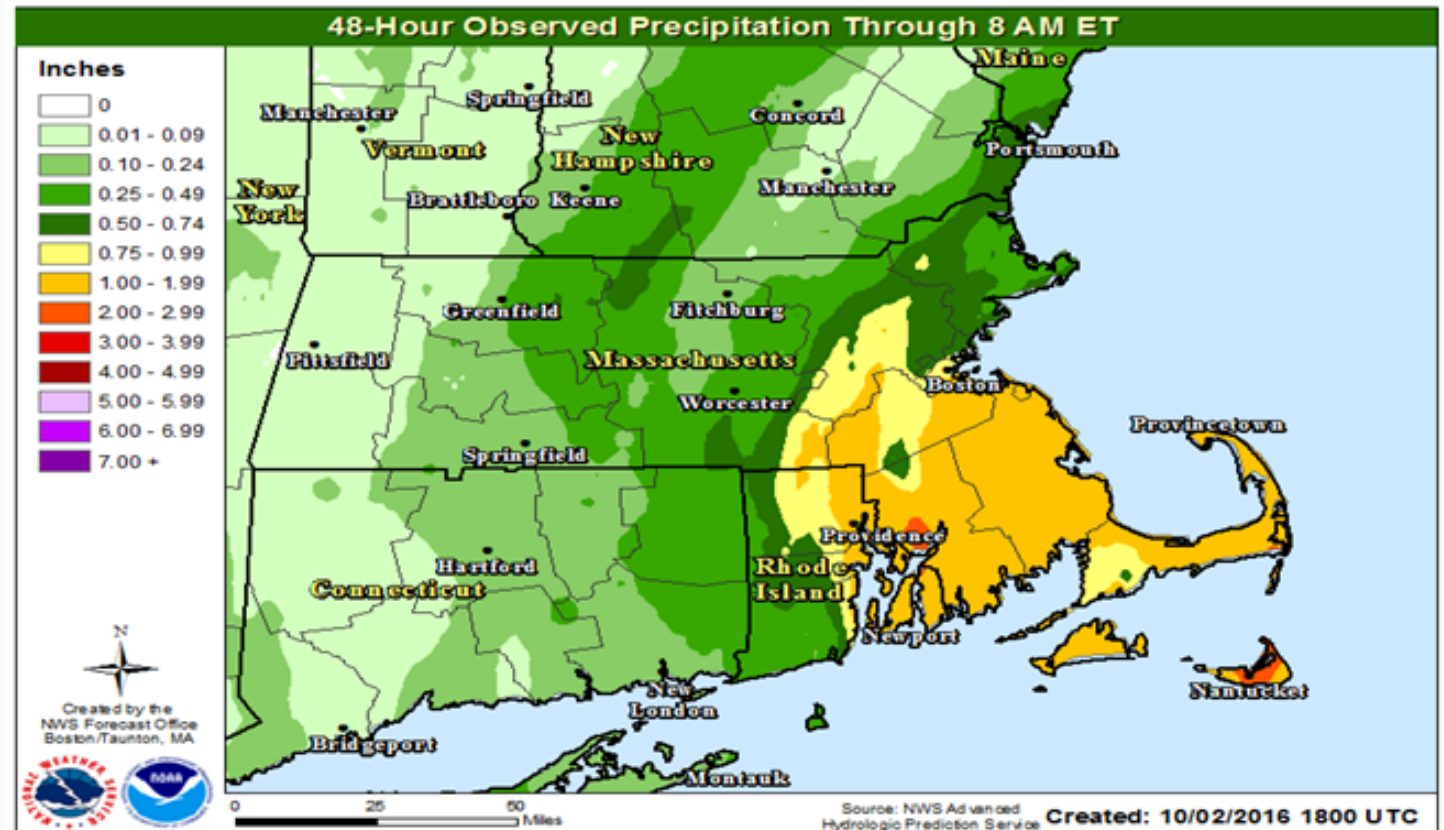
http://www.planning.ri.gov/documents/guide_plan/RI%20Water%202030_06.14.12_Final.pdf

Examples for MA/RI: Short and Long Term Precipitation & Deficits

Departure from Normal Precipitation (in)
9/21/2013 – 9/20/2016



48 Hour Precip ending 18Z 10/02/16



Generated 9/21/2016 at HPRCC using provisional data.

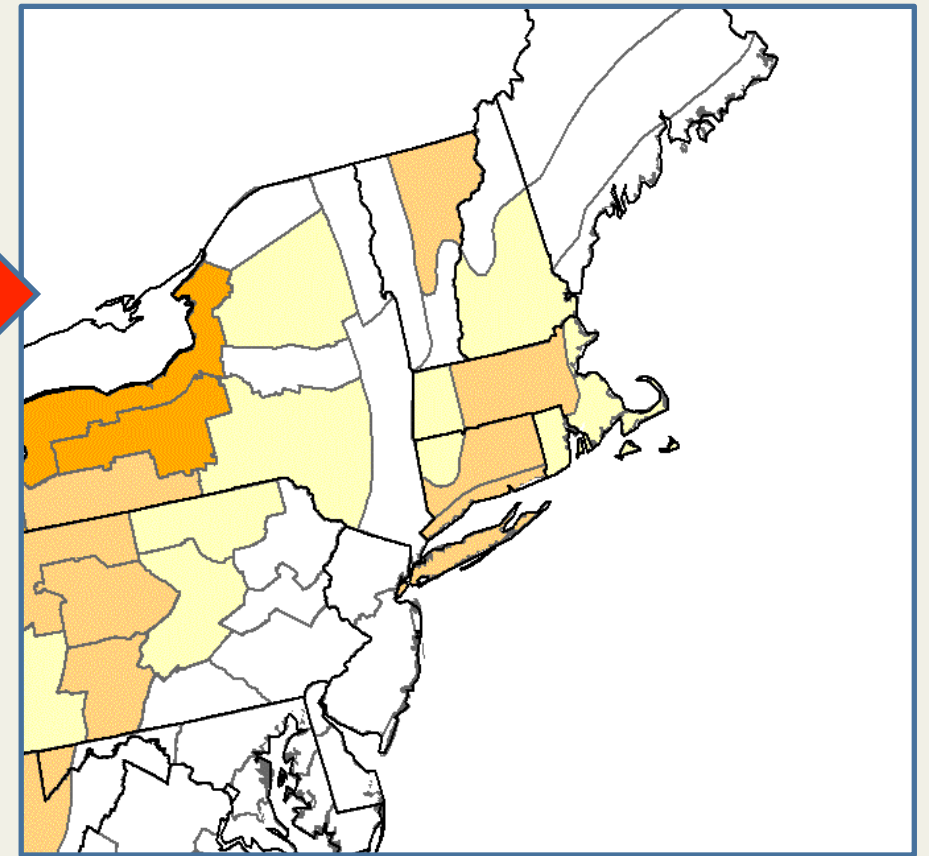
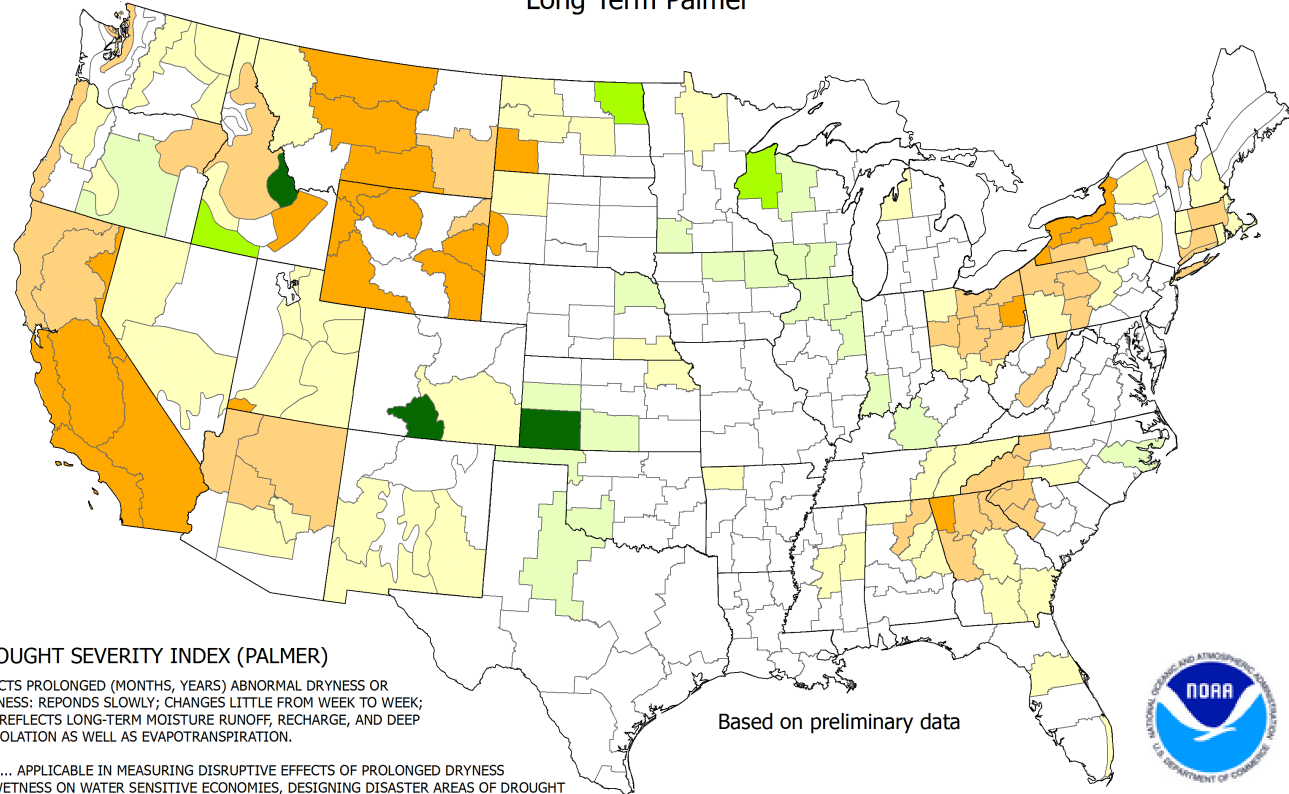
Region



Source: NWS Advanced Hydrologic Prediction Service Created: 10/02/2016 1800 UTC

Palmer Drought Severity Index

Drought Severity Index by Division
Weekly Value for Period Ending Jul 30, 2016
Long Term Palmer

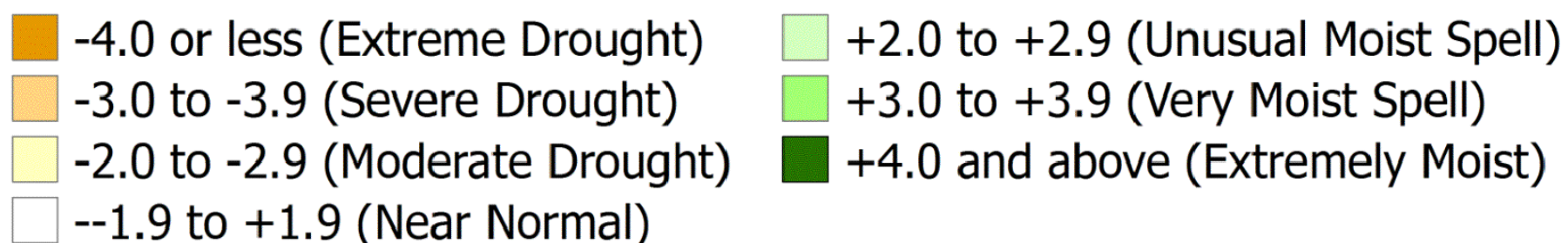


RI Drought Index: PDSI

RI Value -2.43, 'Moderate Drought'

Drought Advisory Criteria

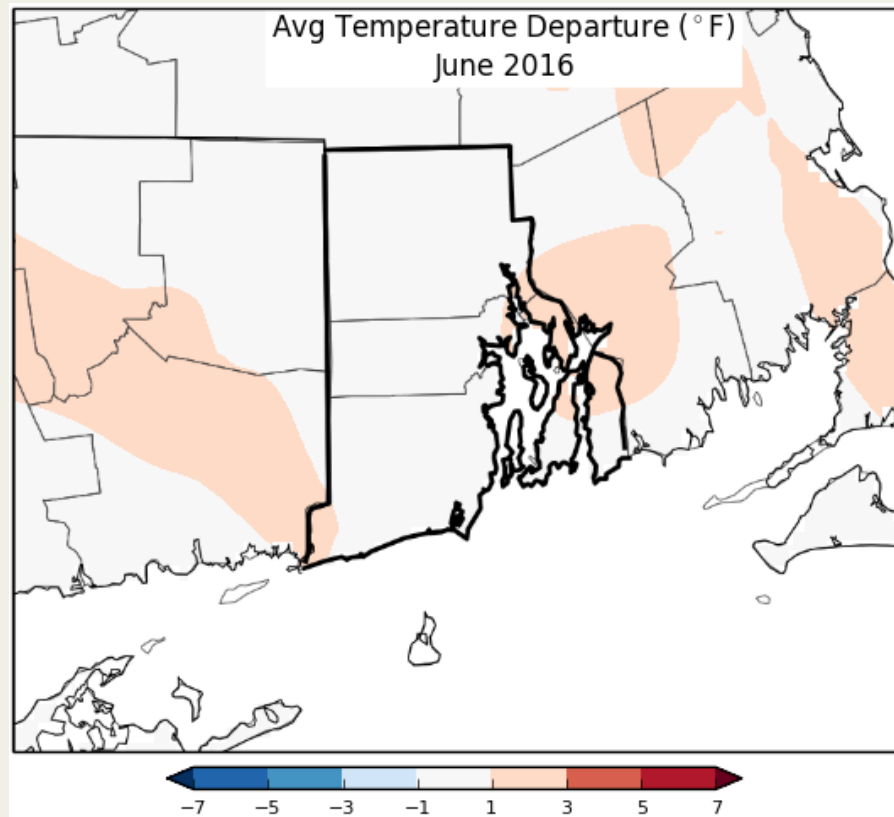
PDSI -2 to -2.99



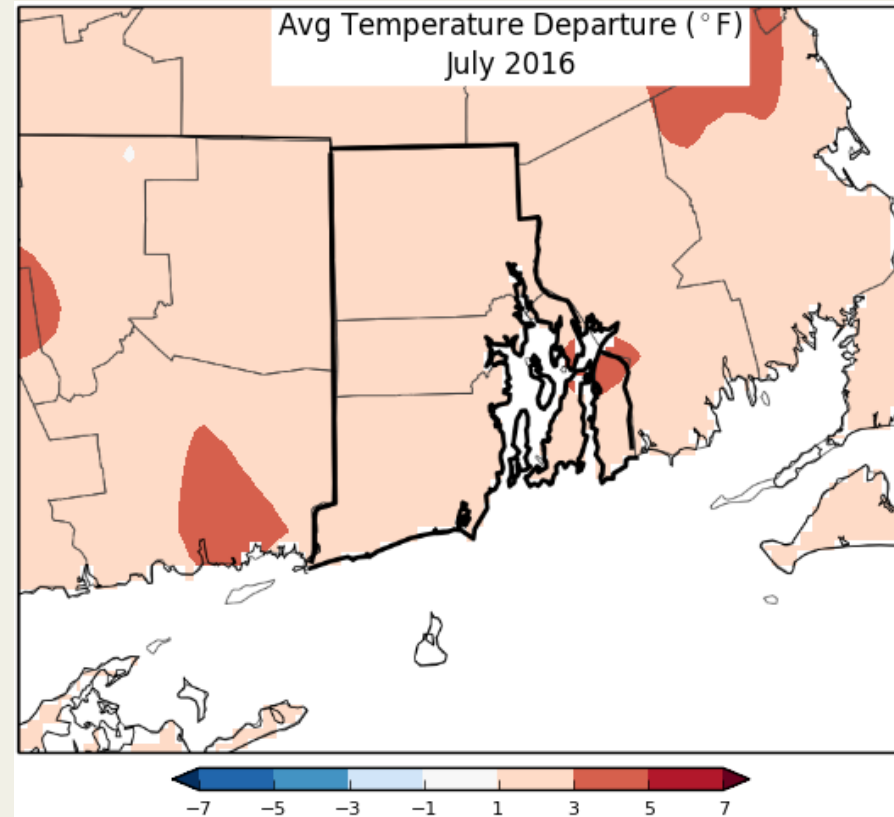
Maps From NWS Climate Prediction Center, Monitoring and Index Data:

http://www.cpc.ncep.noaa.gov/products/MD_index.shtml

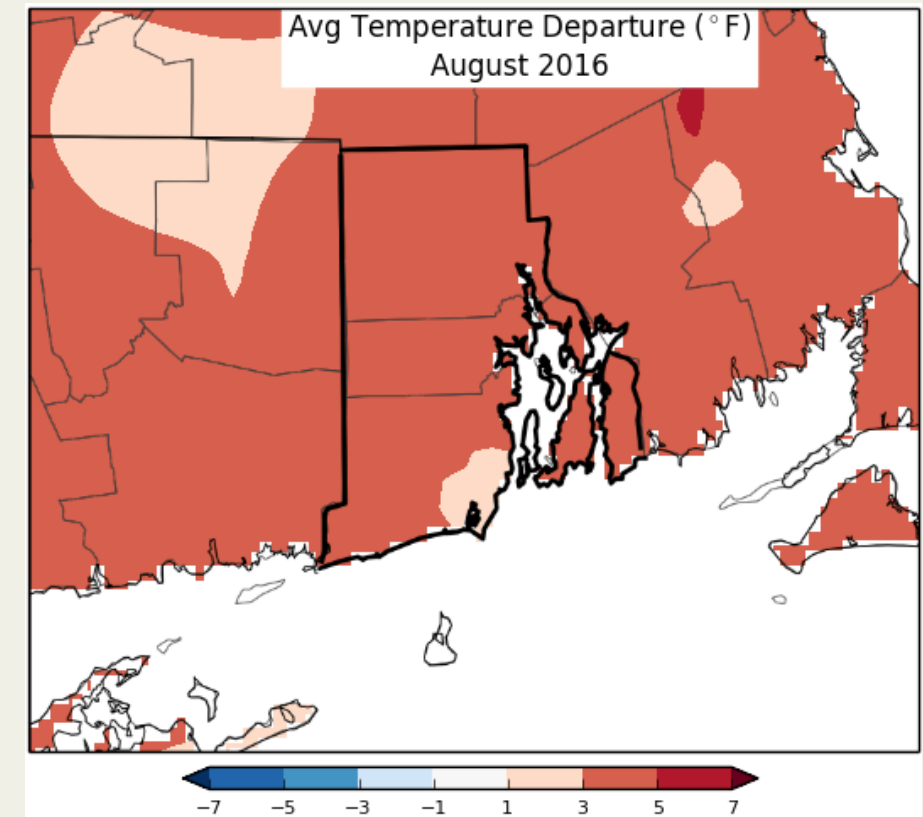
RI State Drought Meeting Example- Monthly Temperature Departure from Normal



June- Near Normal
PVD/TF Green +0.8



July- Above Normal
PVD/TF Green +2.5



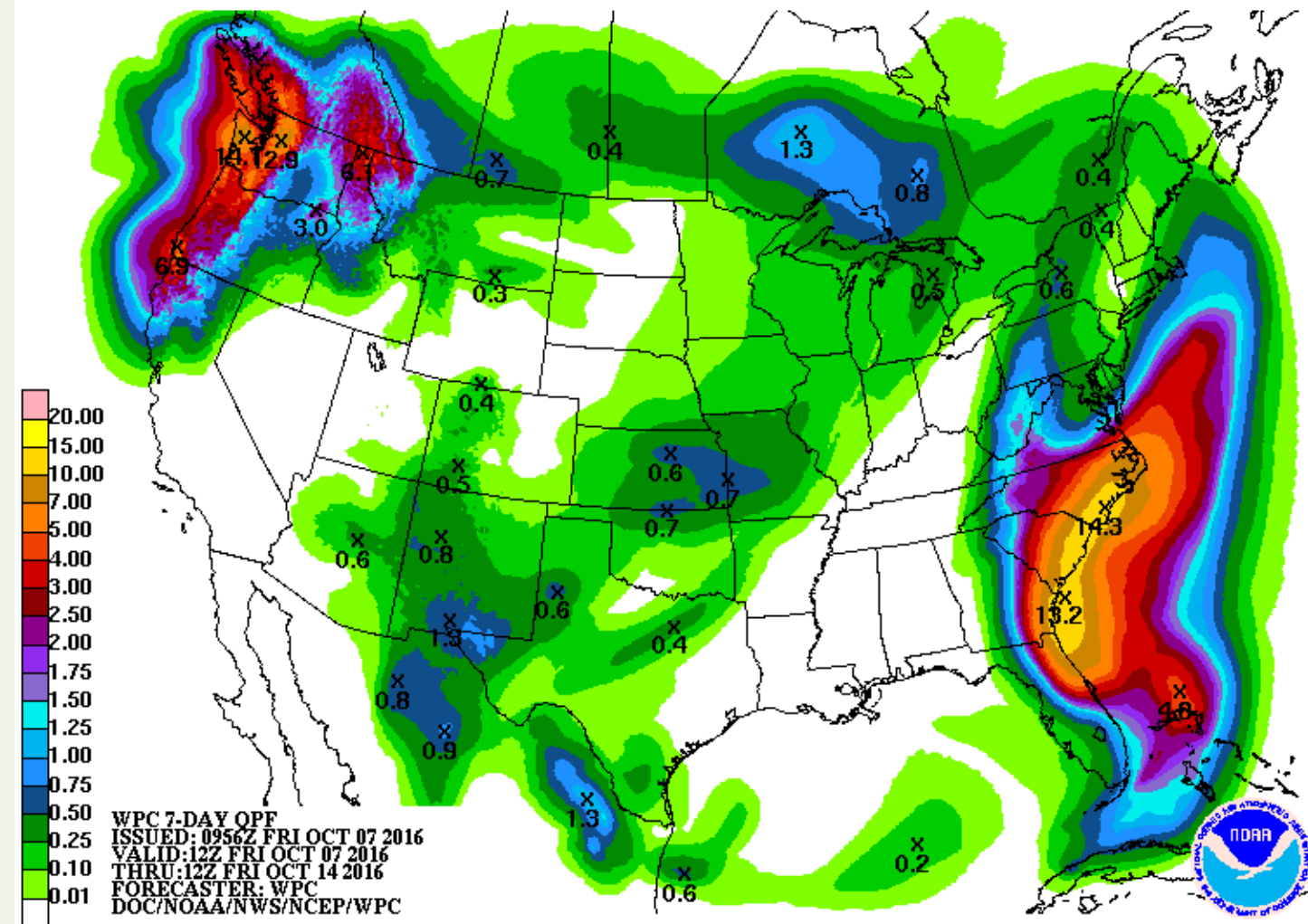
Aug- Above Normal
PVD/TF Green +3.7



<http://www.nrcc.cornell.edu/regional/monthly/monthly.html>

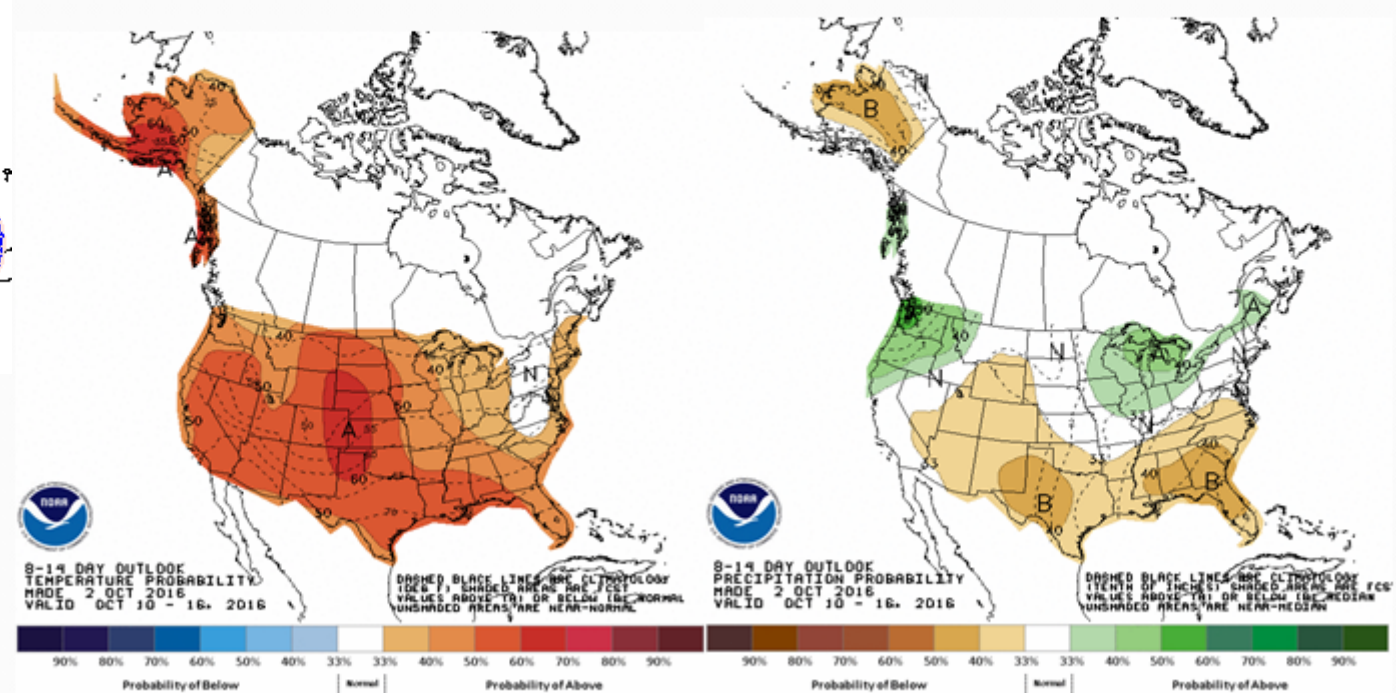
Maps from Northeast Regional Climate Center

Examples: Forecast Precipitation and Temperatures 1 to 2 weeks out



<http://www.cpc.ncep.noaa.gov/>

8-14 Day Outlook



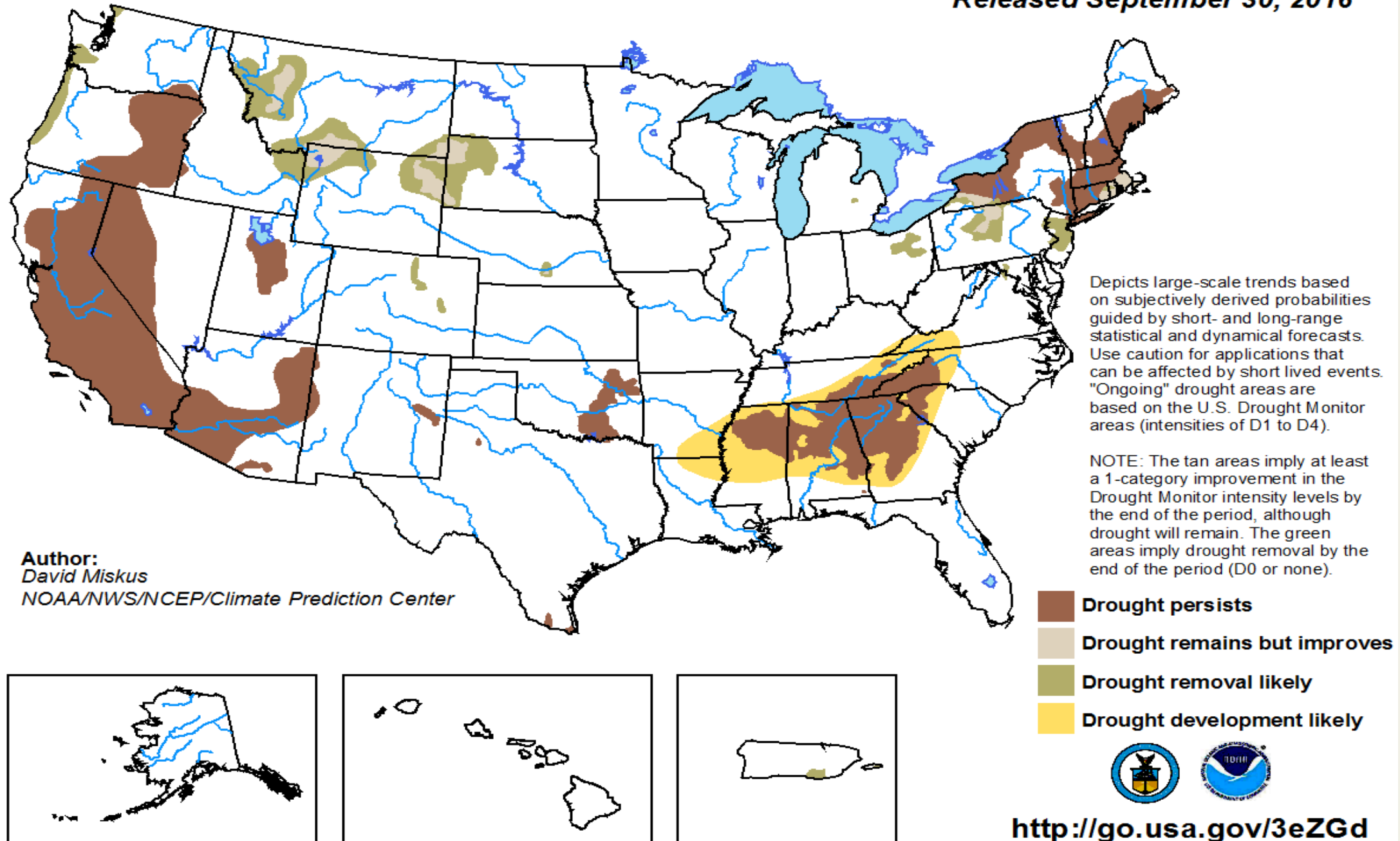
<http://www.wpc.ncep.noaa.gov/>



U.S. Monthly & Seasonal Drought Outlooks (NOAA Climate Prediction Center)

U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

*Valid for October 2016
Released September 30, 2016*



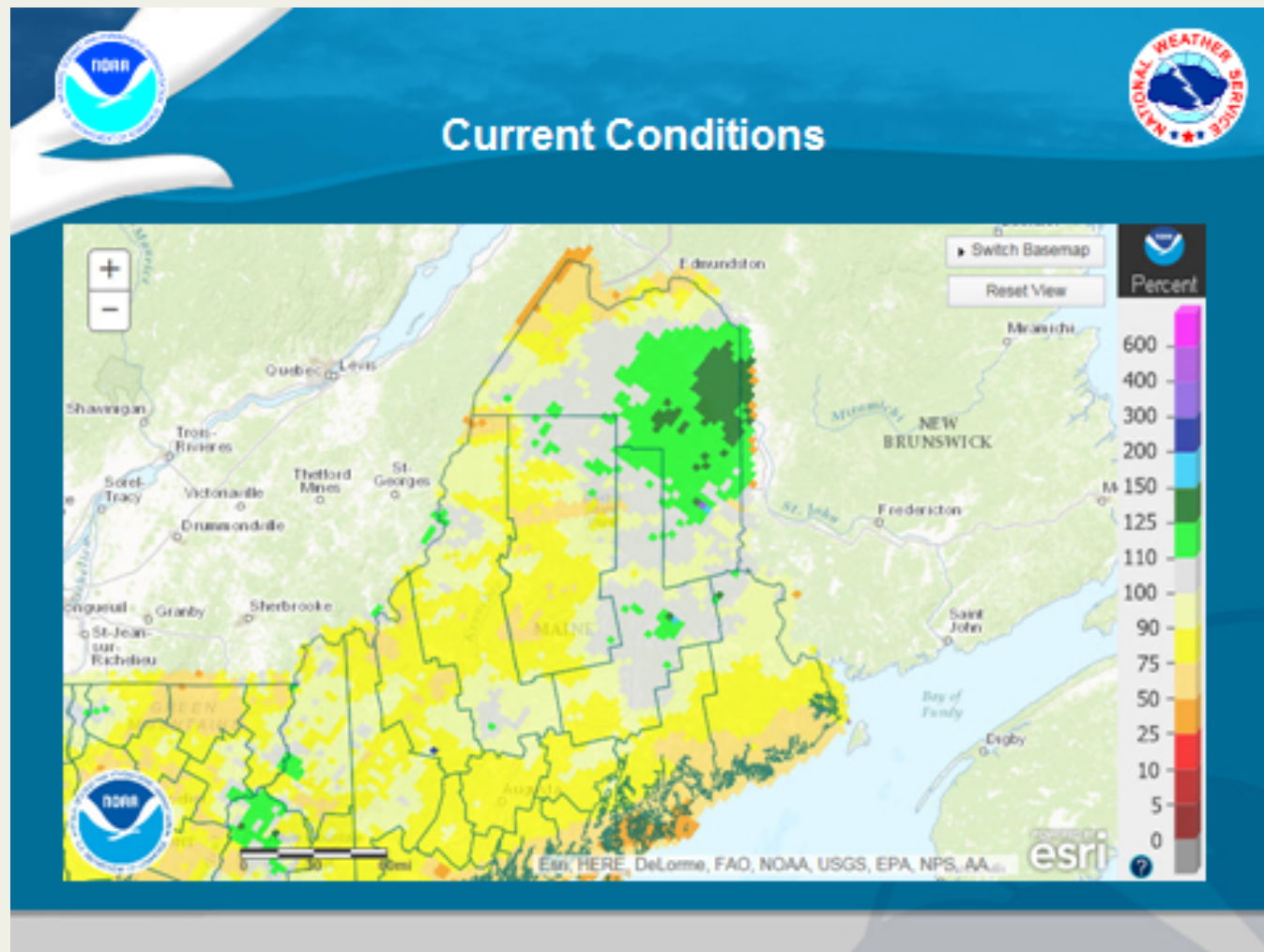
<http://www.cpc.ncep.noaa.gov/>

New Hampshire and Maine Drought DSS

- New Hampshire:
 - Precipitation data and forecasts provided as needed/requested
- Maine:
 - NWS attendance at State Drought Meetings
 - Formal briefing on rainfall/precipitation and forecasts



Examples of Maine Briefing Slides



Precipitation Percent of Normal. Web site:
<http://water.weather.gov/precip>

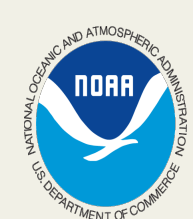
NWS Caribou Calendar Year Precipitation			
Location	Total Rainfall (thru September 6 th)	Relative to Normal	Percentage of Normal
Bangor	22.02"	-4.85"	82%
Millinocket	23.00"	-4.57"	83%
Houlton	26.86"	0.63"	102%
Caribou	31.26"	+5.90"	123%
Frenchville	22.75"	-0.06	99%

Point-Specific Precipitation totals and departure
from normal/percent of normal

Additional NWS Products:

Drought Information Statements

- Statements issued when US Drought Monitor shows an area in Severe Drought (D2) or worse
- Updated at least on a monthly basis
- Provide latest reports on current drought situations in an NWS Office's forecast area.
- Drought information statements:
 - Provide a unified summary of current drought severity, indices, data, impacts, forecasts, and products
http://forecast.weather.gov/product_sites.php?site=CRH&product=DGT



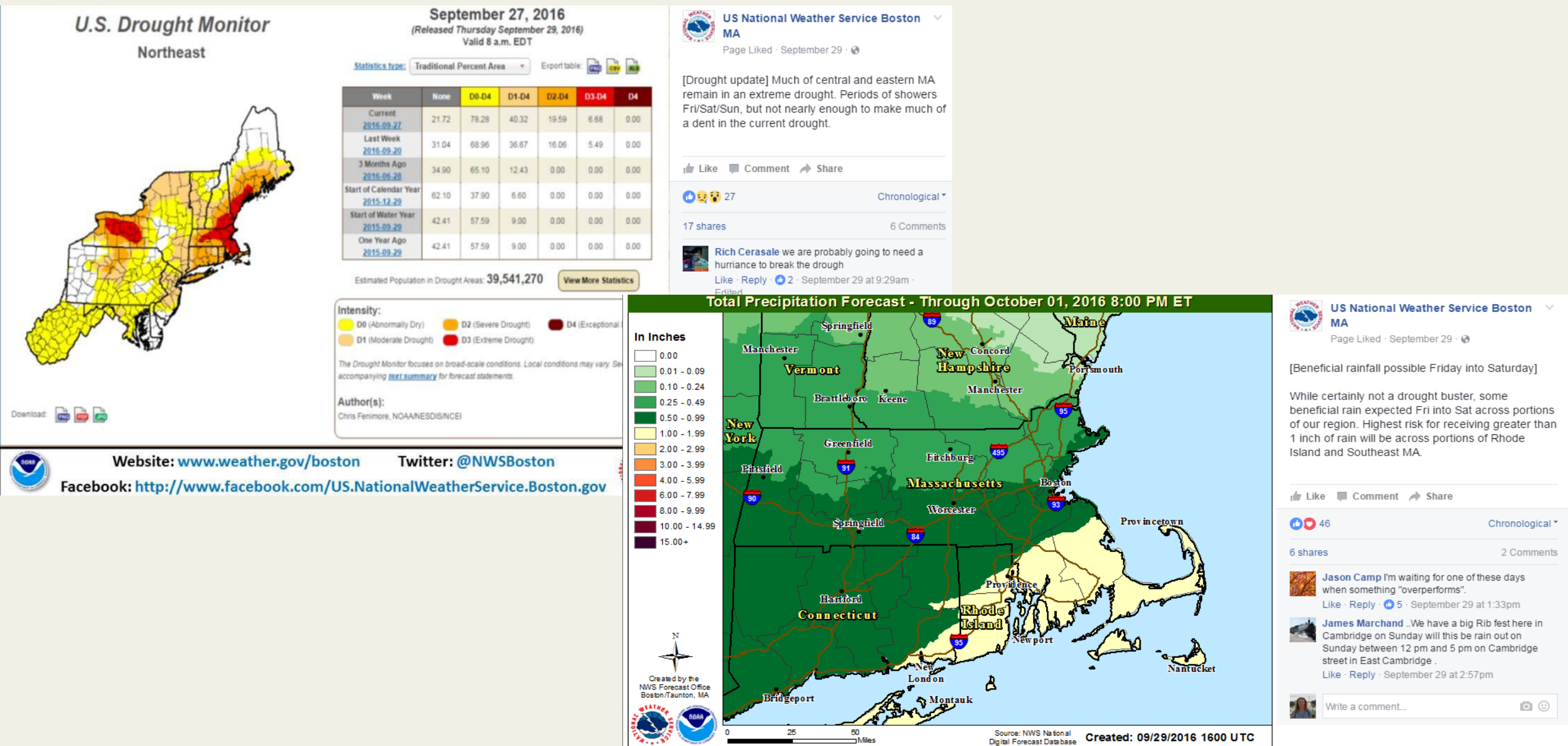
Additional NWS Activities:

Media Interviews

- Media phone calls and interviews are commonplace among NWS offices
- During Summer and Fall 2016 to date:
 - NWS Taunton/Boston MA participated in over 70 media interviews discussing the 2016 Drought
 - Most interviews were over the phone (news print/online news, radio, TV Station queries)
 - Some interviews in-person



Additional NWS Activities: Messaging Through Social Media



Thanks very much for your time!

- For additional information, contact:
- Nicole Belk, Senior Service Hydrologist
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- Alan Dunham, Observation Program Leader/Hydro Focal Point
NWS Taunton/Boston MA: Alan.Dunham@noaa.gov
- Additional thanks to the following NWS staff who contributed to this presentation: Britt Westergard, James Brewster and Thomas Hawley.

